

13. The semisubmersible vessel of claim 12, wherein an outer perimeter of the ring pontoon forms an octagon.

14. The semisubmersible vessel of claim 1, wherein the first interior vertical partition in each of said four columns is formed as an extension of the side of either the forward or aft section of the pontoon ring.

15. The semisubmersible vessel of claim 3, wherein the vertical centerline of each of the columns is located inward of the axial centerlines of the starboard and port sections of the ring pontoon.

16. The semisubmersible vessel of claim 15, further comprising a plurality of compartments each formed between adjacent sections of the ring pontoon, wherein a side of each of said four columns is formed as an extension of a side of the adjacent compartment.

17. The semisubmersible vessel of claim 3, wherein said forward and aft sections of the ring pontoon have a reduced sectional height compared with the starboard and port sections of the ring pontoon.

18. The semisubmersible vessel of claim 3, wherein the ring pontoon is non-square.

19. The semisubmersible vessel of claim 18, wherein an outer perimeter of the ring pontoon forms an octagon.

REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks.

Claims 1-6 and 11-19 are pending in this application. Claims 7-10 have been deleted. Claims 1 and 3 are independent. Claims 2, 11-14 depend from claim 1. Claims 4-6 and 15-19 depend from claim 3.

I. Objections

The Examiner objected to the drawings of Figures 1, 2, 5, 8, 9, and 10 because of missing section lines, improper lead lines, and missing reference numerals. The drawings of Figures 1, 2, 5, 8, 9, and 10 have been amended to include the missing section lines and reference numerals and to correct the improper lead lines. Accordingly, withdrawal of this objection is requested. Figures 3, 6, and 7 have also been amended to include missing reference numerals. Applicants believe that this amendment will facilitate understanding of the disclosure. Subsequent to the Examiner's approval, formal replacement sheets for Figures 1-3 and 5-10 incorporating these changes will be submitted to the office.

Claim 1 has been amended as set forth above to correct the typographical error noted by the Examiner. Applicants thank the Examiner for pointing out the error.

II. Rejections under 35 U.S.C. §103

A. Claims 1 and 2 were rejected under 35 U.S.C §103(a) as being unpatentable over U.S. Patent 3,391,666 to Schuller, Jr. in view of U.S. Patent 4,498,412 to Lidén and U.S. Patent 3,490,406 to O'Reilly *et al.* This rejection is respectfully traversed.

Claim 1 recites a semi-submersible vessel which comprises a superstructure deck and a ring pontoon having forward, aft, starboard, and port sections. The forward and aft pontoon sections each have a centerline partition. The superstructure deck is supported by at least four columns located near the forward and aft ends of the starboard and port sections of the ring pontoon. A first interior vertical partition in each of the four columns lies in the same plane as a side of either the forward or aft section of the pontoon ring. Advantageously, by arranging the four columns in the manner recited in claim 1, the movement of the superstructure deck due to wave motion is reduced.

Schuller, Jr. discloses a semi-submersible vessel which includes a submerged hull, a plurality of hollow stabilizing columns extending upwardly from the submerged hull to above sea level, a superstructure mounted at the upper ends of the stabilizing columns, and means for varying the stabilizing effect of the columns. The means for varying the stabilizing effect of the columns includes providing at least one of the columns with a set of individual buoyancy chambers and individually flooding the chambers with seawater and charging the chambers with air to decrease and increase the waterplane area of the column. Schuller, Jr. does not disclose or teach a submerged hull which has forward and aft sections that have centerline partitions. Schuller, Jr. also does not disclose or teach arrangement of columns near the forward and aft pontoon sections such that a vertical partition in each of the columns lies in the same plane as a side of either the forward or aft pontoon section.

The Examiner asserts that it would be obvious to one of ordinary skill in the art of floating platforms to modify the semi-submersible shown by Schuller, Jr. with centerline partitions in the forward and aft pontoon sections of the submersible hull as taught by Lidén. However, Lidén does not disclose or teach arrangement of columns near the forward and aft pontoon sections such that a vertical partition in each of the columns lies in the same plane as a side of either the forward or aft pontoon section, as recited in claim 1.

The Examiner further asserts that it would be obvious to one of ordinary skill in the art of floating platforms to further modify the semi-submersible shown by Schuller, Jr. in view of Lidén such that a first interior vertical partition in each of the columns lies in the same plane as a side of either the forward or aft pontoon section as taught by O'Reilly *et al.* in Figures 1 through 4. Applicants contend that the vertical partitions in the columns disclosed by O'Reilly *et al.* do not lie in the same plane as a side of either the forward or aft pontoon section. Furthermore, O'Reilly *et al.* do not disclose or teach that such arrangement would be desirable or reduce the movement of the superstructure due to wave motion.

In view of the above, it is clear that Schuller, Jr., whether considered alone or in combination with Lidén and O'Reilly *et al.*, could not have suggested or rendered obvious the invention as claimed in claim 1. Accordingly, withdrawal of this rejection is requested. Claim 2, being dependent from claim 1, is likewise patentable in view of the foregoing arguments.

B. Claims 3, 4, and 6-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 3,391,666 to Schuller, Jr. in view of U.S. Patent 3,490,406 to O'Reilly *et al.* Claims 7-10 have been cancelled. Accordingly, rejection of claims 7-10 is moot. The rejection of claims 3, 4, and 6 is respectfully traversed.

Claim 3 recites a semi-submersible vessel which comprises a superstructure deck and a ring pontoon having forward, aft, starboard, and port sections. The superstructure deck is supported by at least four columns located near the forward and aft ends of the starboard and port sections of the ring pontoon. The vertical centerline of each of the columns is located inward of both the axial centerline of the forward section of the ring pontoon and the axial centerline of the aft section of the ring pontoon. Advantageously, by arranging the four columns in the manner recited in claim 3, the movement of the superstructure deck due to wave motion is reduced.

Schuller, Jr. discloses a semi-submersible vessel which includes a submerged hull, a plurality of hollow stabilizing columns extending upwardly from the submerged hull to above sea level, a superstructure mounted at the upper ends of the stabilizing columns, and means for varying the stabilizing effect of the columns. The means for varying the stabilizing effect of the columns includes providing at least one of the columns with a set of individual buoyancy chambers and individually flooding the chambers with seawater and charging the chambers with air to decrease and increase the waterplane area of the column. Schuller, Jr. does not disclose or teach arrangement of columns on a ring pontoon such that a vertical centerline of each column is located inward of both the forward and aft sections of the ring pontoon.

While the Examiner admits that Schuller, Jr. does not show columns having vertical centerlines located inward of both the forward and aft sections of the ring pontoon, the Examiner asserts that O'Reilly *et al.* show columns with vertical centerlines that are located inward of the axial centerline of the aft section of a buoyant hull. Applicants, however, contend that this assertion is not supported by O'Reilly *et al.* Specifically, Figure 2 of O'Reilly *et al.* clearly shows vertical centerlines of columns outward of the axial centerline of the aft section of the buoyant hull.

Because neither Schuller, Jr. nor O'Reilly *et al.* discloses or teaches arrangement of columns on a ring pontoon such that a vertical centerline of each column is located inward of both the forward and aft sections of the ring pontoon, it is clear that the combined teachings of Schuller, Jr. and O'Reilly *et al.* could not have made the invention as claimed in claim 3 obvious. Withdrawal of the rejection of claim 3 is requested. Claims 4 and 6, being dependent from claim 3, are likewise patentable in view of the foregoing arguments.

C. Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 3,391,666 to Schuller, Jr. in view of U.S. Patent 3,490,406 to O'Reilly *et al.* and U.S. Patent 4,498,412 to Lidén. This rejection is respectfully traversed.

As previously discussed, Schuller, Jr. and O'Reilly *et al.* do not disclose or teach arrangement of columns on a ring pontoon such that a vertical centerline of each column is located inward of both the forward and aft sections of the ring pontoon, as recited in claim 3. Lidén also fails to show arrangement of columns on a ring pontoon such that a vertical centerline of each column is located inward of both the forward and aft sections of the ring pontoon.

In view of the above, it is clear that the combination of Schuller, Jr. with O'Reilly and Lidén does not suggest or render obvious the invention as claimed in claim 3. Because claim 5 depends from claim 3, claim 5 is patentable in view of the foregoing arguments. Withdrawal of the rejection of claim 5 is requested.

Newly added claims 11-13, 15, 17-19 recite substantially the limitations in the cancelled claims 7-10. Newly added claim 14 recites that the first interior vertical partition in each of the four columns in claim 1 is formed as an extension of the side of either the forward or aft section of the pontoon ring. Newly added claim 16 recites that a plurality of compartments are formed between adjacent sections of the ring pontoon in claim 3 and a side of each of the four columns is formed as an extension of a side of the adjacent compartment. Support for these claims can be found in the disclosure. Since claims 11-19 depend from either claim 1 or 3, they are also patentable in view of the foregoing arguments.

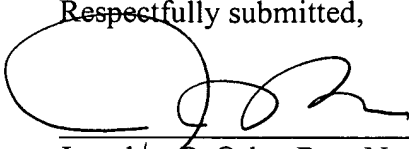
Because the claims have been shown to be allowable over the prior art, the application is now in condition for allowance. Favorable action is requested.

Please apply any charges not covered, or any credits, to Deposit Account 50-0591
(Reference No. 09389/002001).

Date:

4/8/99

Respectfully submitted,



Jonathan P. Osha, Reg. No. 33,986
Rosenthal & Osha L.L.P.
700 Louisiana, Suite 4550
Houston, TX 77002

Telephone: (713) 228-8600
Facsimile: (713) 228-8778

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Fig 1

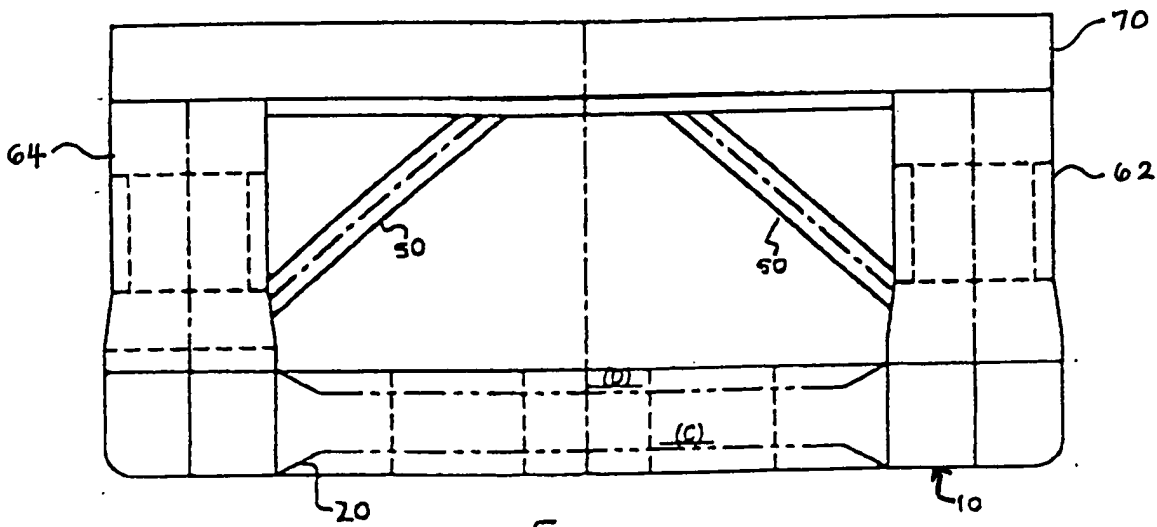
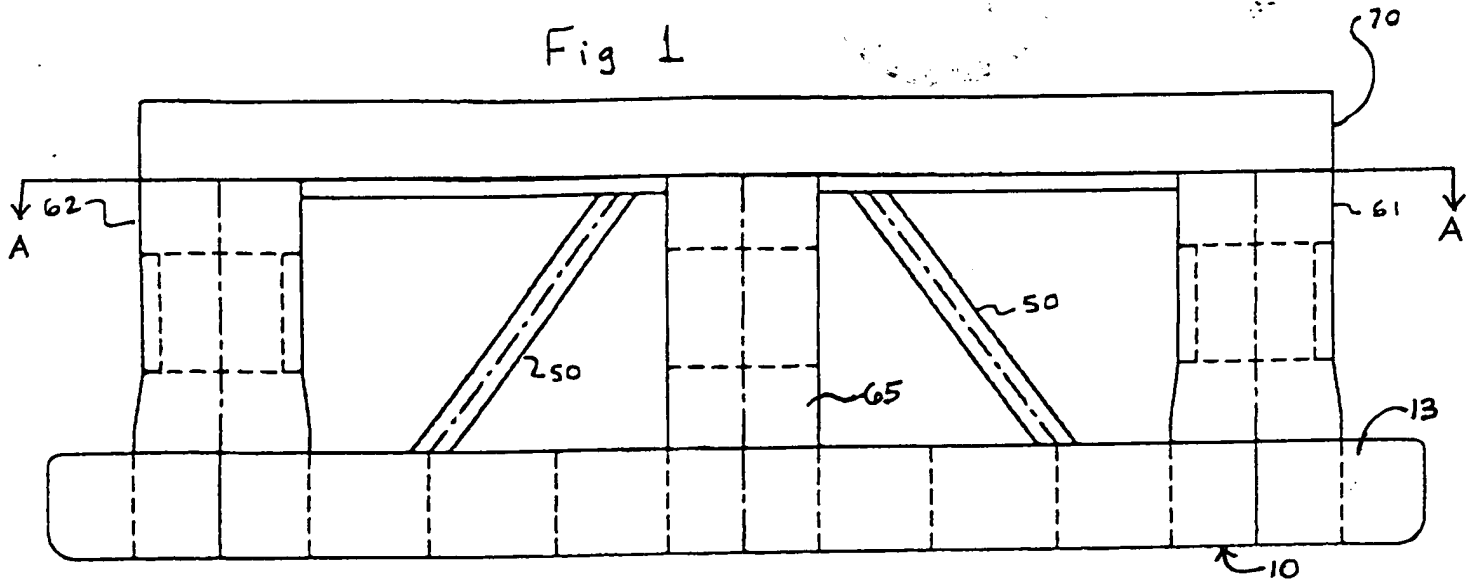
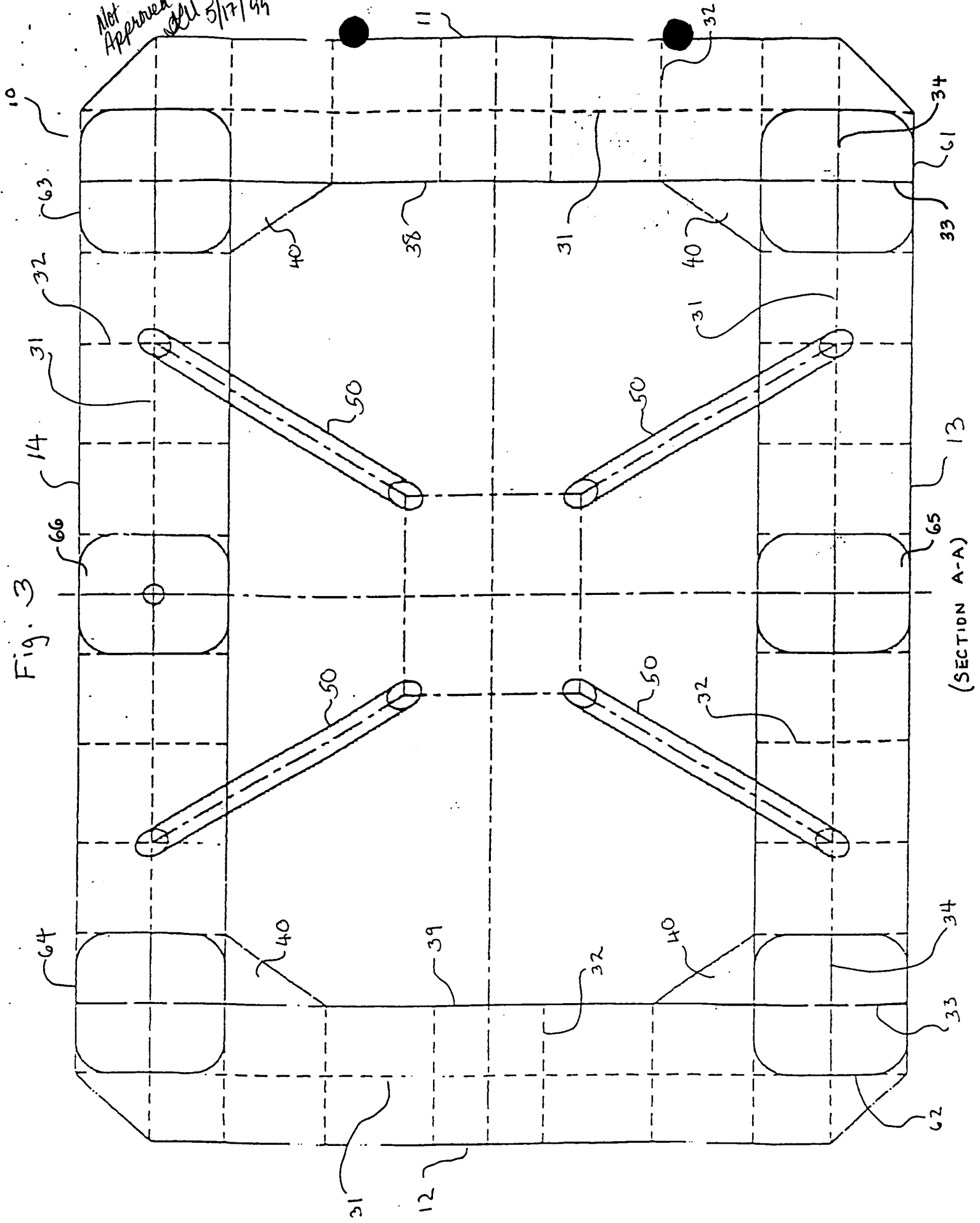


Fig. 2

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Fig. 3



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Fig. 5

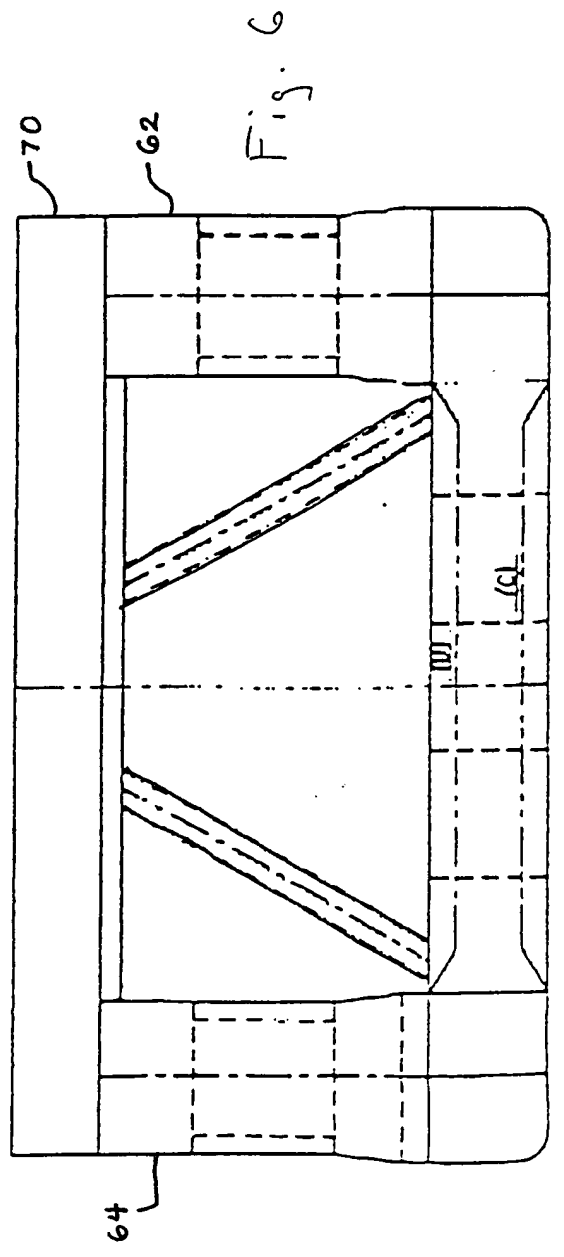
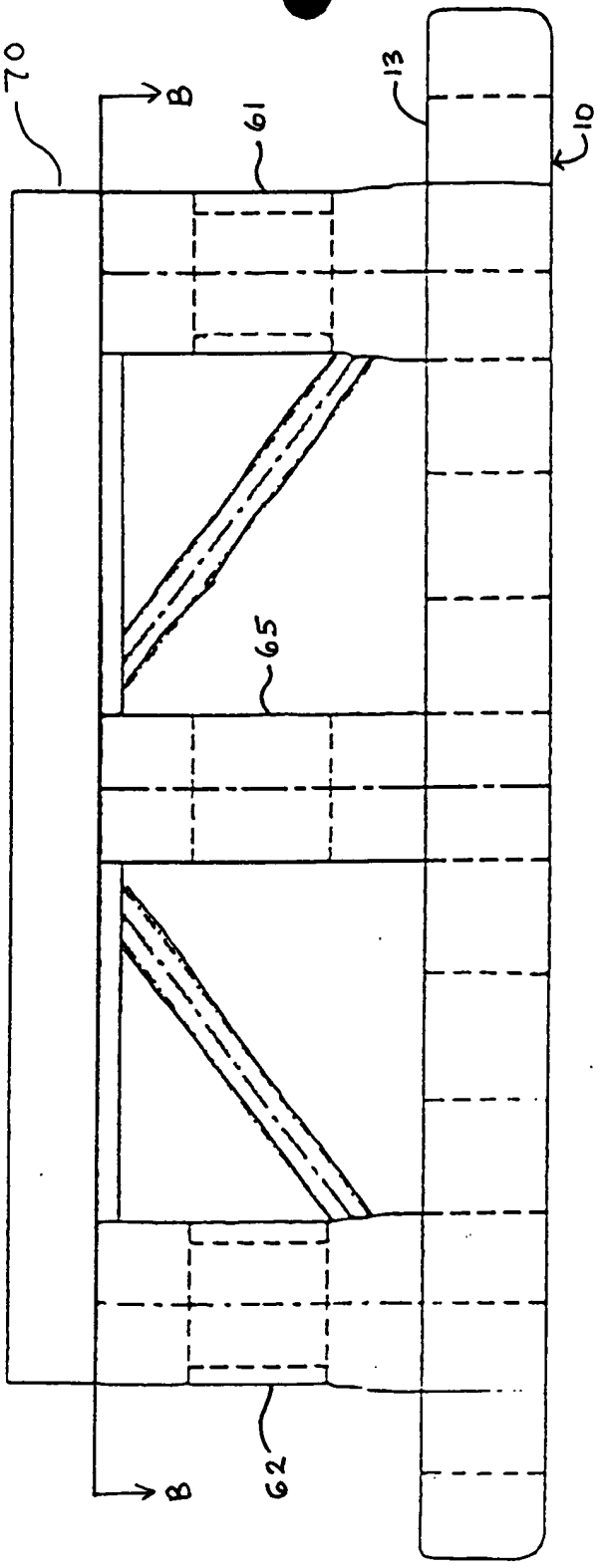


Fig. 6

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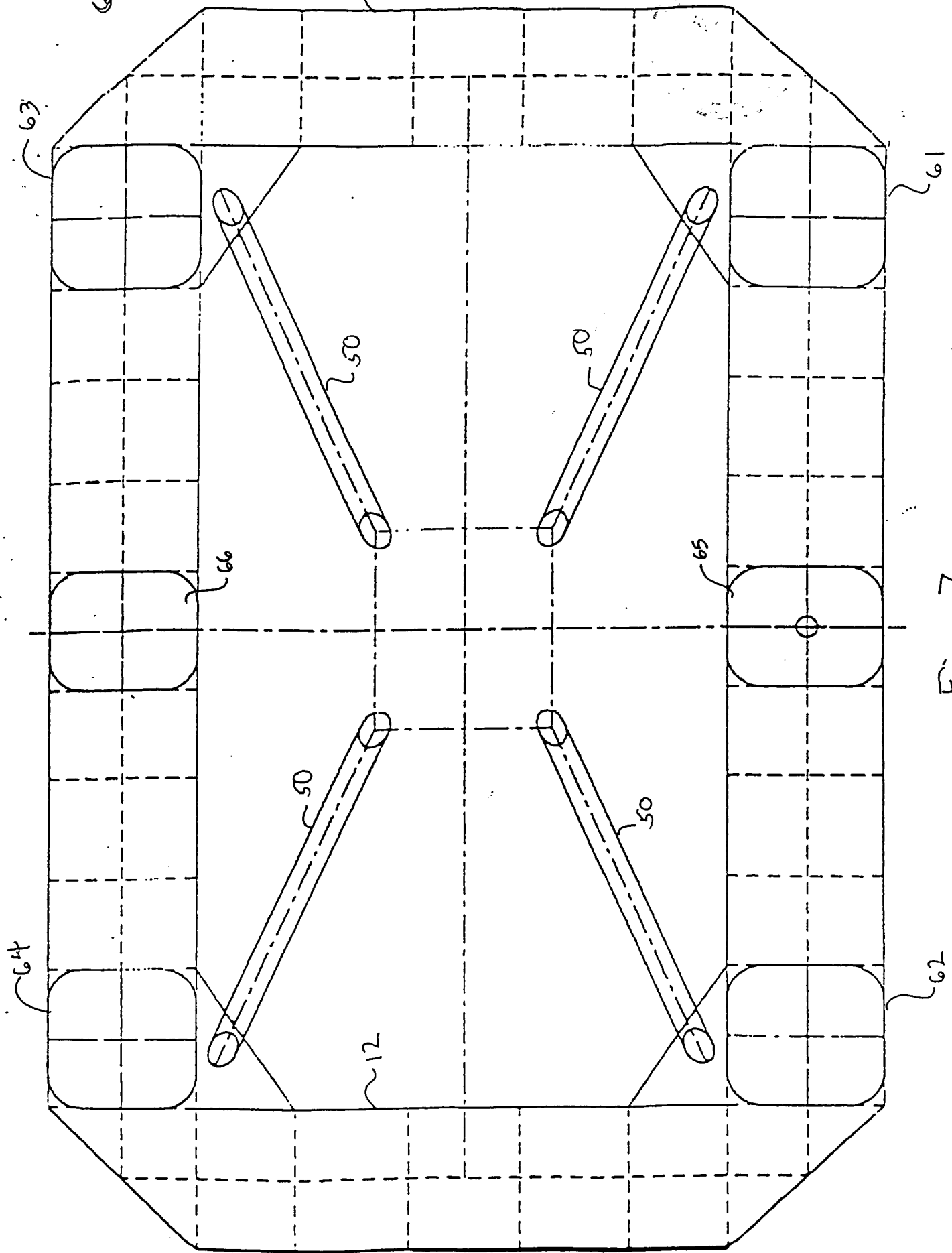


Fig. 7
(SECTION B-B)

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Fig. 8.

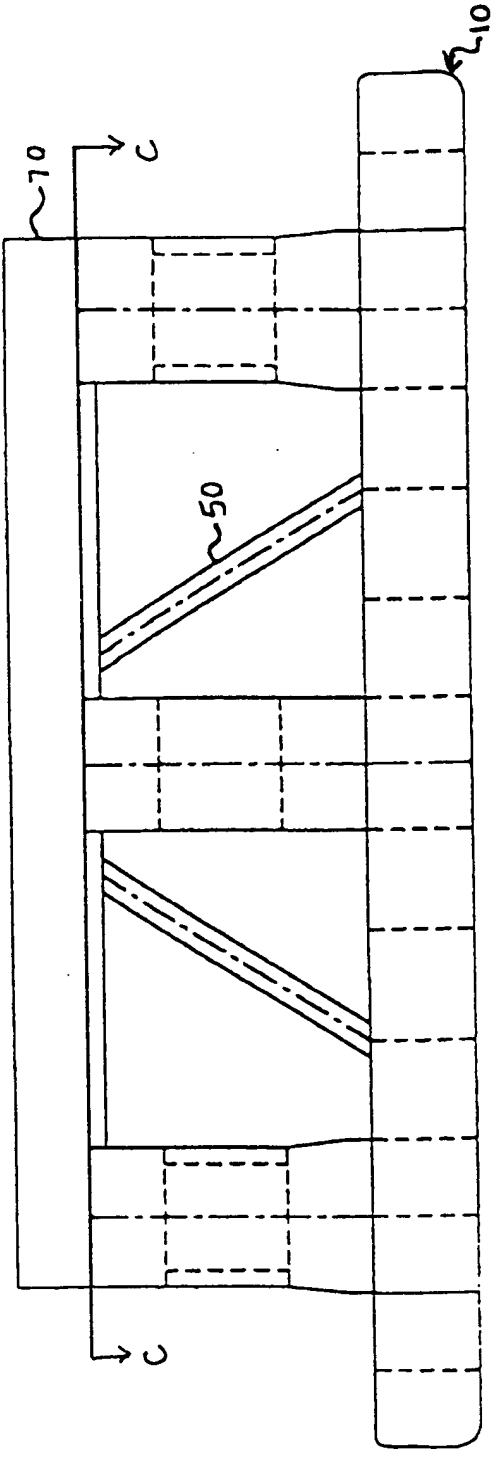
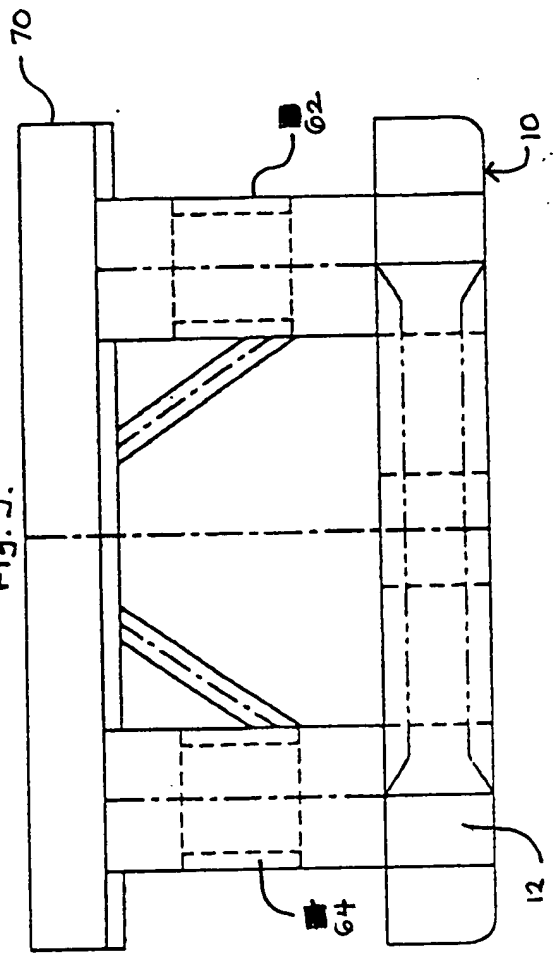


Fig. 9.



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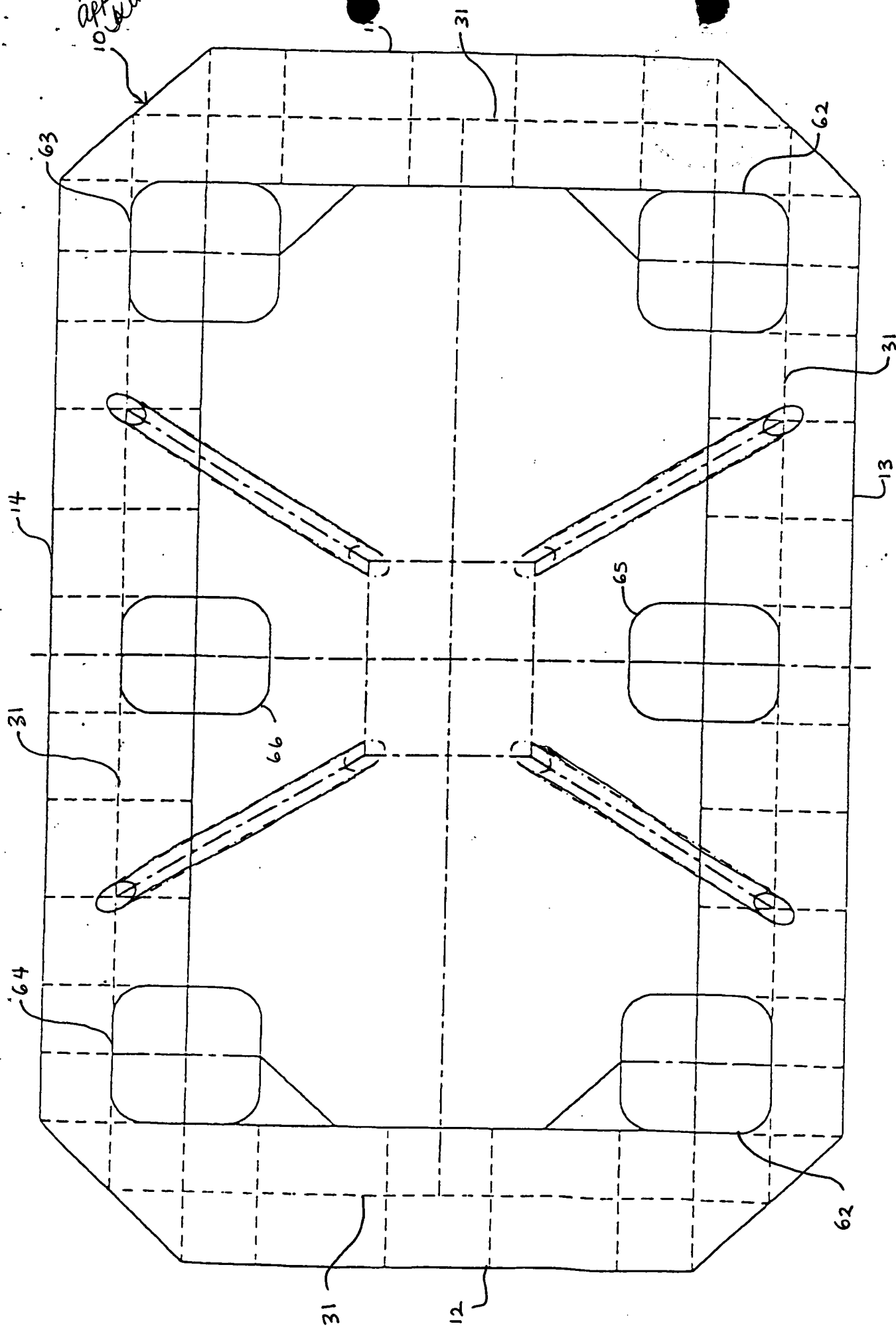


Fig. 10

(SECTION C-C)